

## FROM THE DESK OF THE EXECUTIVE DIRECTOR

**MARÍA ALICIA LÓPEZ-FREEMAN, EXECUTIVE DIRECTOR**

For more than 20 years, I was a high school chemistry and physics teacher. Of those years, the experience that most impacted my teaching was the on-going conversations I had with two fellow teachers of chemistry about the lessons we taught. We talked about the details, the teaching, the management issues but most of all we talked about what students learned and didn't learn. We edited, revised, deleted, reconsidered and rethought the lessons. That we were able to do this was primarily because we respected one another as teachers, and we were very concerned that our students did not always learn.



The essence of Lesson Study is a deep intellectual involvement of teachers in the learning of their students and the act of teaching that enables this to take place. At many of the CSP regional sites, there are groups of teachers involved in Lesson Study. They are enthusiastic, motivated and proving that teachers are engaged and critical professionals willing to engage with others and examine science lessons.

The quality of teaching can and is improved as teachers are provided the opportunities to work with fellow teachers in a highly focused effort centered on student learning. The more that Lesson Study becomes common practice for all teachers, for teachers in your school or part of what you do, the greater the impact on the quality of teaching and student learning.

## WHAT ARE THE ESSENTIAL ELEMENTS OF LESSON STUDY?

**BY CATHERINE LEWIS, PH.D., SENIOR RESEARCH SCIENTIST, MILLS COLLEGE, OAKLAND, CA<sup>1</sup>**

I recently asked a large group of California teachers how many of them had seen a promising educational approach discarded before it had been given a reasonable try. Every hand went up. Teachers volunteered several reasons that innovations fail so regularly. Many innovations are "watered down" or reduced to a few ritualistic activities by the time they reach the local school sites, where trainers may be several generations removed from the innovation's originators. Local educators may be pressured to implement features of an innovation quickly, without understanding their underlying purpose.

For the last ten years, I have conducted research in Japan on Lesson Study, the core form of professional development for Japanese teachers (refs). In the Lesson Study cycle, teachers work together to:

- Formulate goals for student learning and long-term development.
- Collaboratively plan a "research lesson" designed to bring to life these goals.
- Conduct the lesson, with one team member teaching and others gathering evidence on student learning and development.
- Discuss the evidence gathered during the lesson, using it to improve the lesson, the unit, and instruction more generally.
- Teach the revised lesson in another class room, if desired, and study and improve it again.<sup>2</sup>

Lesson Study is credited for the shift from "teaching as telling" to "teaching for understanding" in Japanese mathematics and science education, and is highly valued both by Japanese teachers and administrators (refs). Although Lesson Study is rapidly emerging in sites across the United States (refs), the history of other educational innovations should make us wary. Will Lesson Study be scantily implemented and quickly discarded like so many other once-promising educational innovations?

Unfortunately, Lesson Study and other innovations do not come with features neatly labeled "superficial" or "essential" so we know just how to implement them. To make matters worse, many features of Lesson Study will no doubt have to be adapted for the very different educational environment of the U.S. How are we to know what is a beneficial adaptation and what a "lethal mutation?" (ref)

*Lesson Study: A Handbook of Teacher-led Instructional Change* identifies core experiences of Lesson Study, drawing

on interviews with Japanese and U.S. educators and observations of Lesson Study groups in both countries. Published recently by Research for Better Schools ([www.rbs.org](http://www.rbs.org)), the handbook also highlights the practical know-how developed by educators in the San Mateo-Foster City School District (CA) and other U.S. settings to bring to life Lesson Study in the United States.<sup>3</sup> Chapter 4 of the Handbook, excerpted here, summarizes the opportunities that well-designed Lesson Study should provide, which are also laid out in Figure 1.

### 1. THINK CAREFULLY ABOUT THE GOALS OF A PARTICULAR LESSON, UNIT, AND SUBJECT AREA

A U.S. teacher described the impact of Lesson Study on his instruction:

"The most notable change in my lesson planning and teaching has been the questions that I ask myself. The first question I ask myself about a lesson is 'what do I want the students to learn from this lesson?' While this may seem an obvious question to ask, it was never something I asked myself until I began the Lesson Study process. The question I was asking myself before Lesson Study was more like 'what am I covering today?'"<sup>4</sup>

### 2. STUDY AND IMPROVE THE BEST AVAILABLE LESSONS

U.S. teachers beginning Lesson Study often assume that lessons should be original, but in fact Lesson Study typically builds on and improves the best available lessons and unit plans. For example, the teachers featured in the video "Can You Lift 100 Kilograms?" began by comparing several different unit plans for teaching levers.<sup>5</sup> As teachers draw on the best available lessons, and add, test, and report their modifications, the quality of lessons steadily improves.

### 3. DEEPEN OUR SUBJECT-MATTER KNOWLEDGE

Lesson Study provides opportunities to discuss the academic content of lessons. For example, U.S. and Japanese Lesson Study groups have discussed issues like the following in the course of planning or analyzing lessons:

- When students move a solar battery closer to a light source and when they add a bulb to the light source, are students correct to describe both of these as "intensifying the light on the solar battery?"



*Engaging in the science - challenging our understanding and knowing what we understand. (Sacramento Area Science Project)*

- What is the "slope" of a line? Is it the same thing as the angle of a line? If so, when a line's angle is changed by a change in the scale of the y axis, does the line's slope change as well?
- Why are there 180 degrees in the angles of a triangle?
- If tweezers are a lever, where is the fulcrum?

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### STATEWIDE OFFICE CONTACT INFORMATION

MARÍA ALICIA LÓPEZ-FREEMAN  
EXECUTIVE DIRECTOR  
(310) 794-4861  
EMAIL: MAFREEMA@UCLA.EDU

MICHELLE GAMBOA-HUITRÓN  
PROJECT COORDINATOR  
(310) 794-4862  
EMAIL: MGH@UCLA.EDU

MAILING ADDRESS:  
CALIFORNIA SCIENCE PROJECT  
3806 GEOLOGY BLDG., UCLA  
LOS ANGELES, CA 90095-1567  
(310) 794-6359 FAX  
HTTP://CSMP.UCOP.EDU/CSP/

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# FINDING A NICHE FOR LESSON STUDY IN THE CULTURE OF UNITED STATES EDUCATION WITHIN THE TRADITIONS OF PRACTITIONER RESEARCH

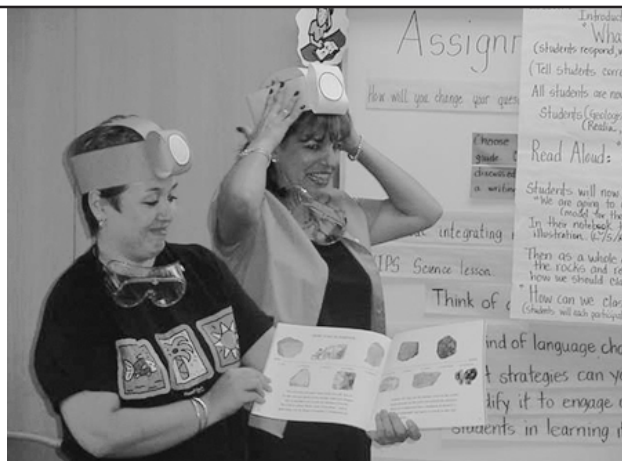
BY PAM CASTORI, PH.D., SCIENCE  
EDUCATION EXTENSION SPECIALIST  
AND COORDINATOR, CRESS TEACHER  
RESEARCH PROGRAM, UNIVERSITY OF  
CALIFORNIA, DAVIS

The final bell rang 15 minutes ago, and three high school science teachers chat in a classroom. During this impromptu meeting, these teachers from the Lesson Study team at Natomas High relive a lesson referring to it in much the same way a team of scientists might talk as they consider – and reconsider – the results and implications of an experiment. I am struck with the intensity and pensive nature of their discourse about what happened and what could be done differently, and as they develop their arguments and hypotheses for things they observed. Though the lesson happened weeks ago, conversations about assessing what the students were thinking and how the lesson bridged to other concepts or units continue as if the lesson is still underway. The teachers are talking about something that is truly a *research lesson*.<sup>1</sup>

What is it about this process we call Lesson Study that ignites and invites deep thought and careful consideration by teachers about what is important for student learning in science? Given the consuming and demanding nature of teachers' worlds, why do these teachers voluntarily meet for at least 30 hours throughout the year and commit to doing additional research and work on their own time? What is available through this opportunity that makes it so completely approachable, so contagious, and so important to them? Answers to these questions can easily be found in literature about practitioner research – not the typical domain in which one finds ideas about Lesson Study, but a domain that I argue offers it a good theoretical home.

I know of only one Lesson Study team in the greater Sacramento Area, but the tenor of these teachers' conversation and reasons for their commitment are intensely familiar to me. As Coordinator of the Teacher Research Program at the CRESS Center in the School of Education at UC Davis,<sup>2</sup> I work with groups of teachers who *voluntarily* commit to investigate aspects of their teaching, and who meet and engage in passionate and thoughtful conversations about their teaching practice and student learning, akin to the conversations of the Lesson Study teachers.

Two key leaders of the Natomas High Lesson Study team, Rich Hedman and Cristina McFadden, participated in a CRESS Teacher Research group sponsored by the Sacramento Area Science Project (SASP) during the two years



Teachers demonstrate the use of "realia" for a 3rd grade classroom of English Learners. (Imperial Valley Science Project)

prior to formulating and facilitating their current Lesson Study group. As Teacher Researchers, Rich and Cristina met for 30+ hours throughout a school year with science teachers from other schools. They developed research questions about their own practice, collected and analyzed classroom-based data, wrote and revised research reports, engaged in intense deep discourse about teaching and learning science, and they presented their work at the American Educational Research Association Conference in New Orleans. Could that experience have played a role in the success and vitality of the Lesson Study group they have established and now foster at their school? I suggest it has and that it is a significant role. As Lesson Study struggles to gather momentum in this country, perhaps realigning it with the well-established and respected traditions of Teacher/Action research (practitioner research) would help to define its nature and give it a bit more clout. This will mean drawing from what we know about practitioner research in this country and setting the stage for Lesson Study in perhaps slightly different ways.

Catherine Lewis suggests that Lesson Study has a role to play in the U.S. but that we need to find effective ways to adapt it to the cultural settings within our educational system;<sup>3</sup> after all, distinctions between Japanese and U.S. educational systems are apparent. Figuring out how to maintain the spirit and value of Lesson Study as it exists in Japan within our own world of educational accountability and reform has been a challenge. I suggest that rather than situate Lesson Study primarily within science education, math education, or even professional development domains, we align Lesson Study alongside the strong, well-established, respected traditions of action research and teacher research.

Marilyn Cochran-Smith and Susan Lytle define teacher research as "systematic and intentional inquiry about teaching, learning, and schooling carried out by teachers in their own school and classroom settings."<sup>4</sup> Maclean and Mohr discuss teacher research in these terms:

Teacher-researchers raise questions about what they think and observe about their teaching and their students learning. They collect student work in order to evaluate performance, but they also see student work as data to analyze in order to examine the teaching and learning that produced it. To plan and prepare lessons for their students – lessons that address the needs assessed in their work – teacher-researchers also assess their own interpretations of the reasons for the students' performance.<sup>5</sup>

Both of these descriptions could be lifted from the Teacher Research literature and slipped neatly under the language that describes Lesson Study. Though distinctions do exist between Teacher Research and Lesson Study – in particular the products – the fundamental approaches and processes are strikingly similar. This coming year SASP will be systematically investigating the Lesson Study group at Natomas High. One hopeful outcome of this research will be a more comprehensive and critical look at Lesson Study in light of the domains and traditions of practitioner research, something Rich and Cristina have spent time carefully considering.

In the comprehensive *Handbook on Action Research: Participative Inquiry and Practice*<sup>6</sup> there exists no references to Lesson Study. Nesting Lesson Study within the context of practitioner research might nurture the Lesson Study movement, encourage its momentum, help to maintain the spirit and integrity of the process, and be a key construct for enabling it to thrive in the U.S. educational culture.

1. Catherine Lewis discusses the precise Japanese translation for lessons that teachers jointly plan, observe, and discuss as "research lesson."

2. The CRESS Teacher Research program supports between 15 and 20 Teacher Research groups (70-100 teachers) annually and has been thriving for 15 years.

3. Lewis, C. (2000). *Lesson Study: The Core of Japanese Professional Development*. AERA invited address, New Orleans.

4. Cochran-Smith, M., Lytle, S. (1993) *Inside/Outside: Teacher Research and Knowledge*. Columbia University, NY: Teachers College Press.

5. Maclean, M. Mohr, M. (1999) *Teacher-Researchers at Work*. Berkeley, CA: The National Writing Project.

6. Reason, P., Bradbury, H. (Eds.) (2001). *Handbook of Action Research: Participative Inquiry and Practice*. Thousand Oaks: Sage Publications.

## IMPLICATIONS OF LESSON STUDY FOR ENGLISH LEARNERS

BY FRED DOBB, PH.D., CSP ELD SPECIALIST

Each step in the organization of Lesson Study as focusing on goals and content, planning study lessons, teaching and observing lessons, discussing instruction, revising and reteaching, and filing the lesson study report – provide opportunities for observing English Learners (EL) and their work and constructing improved instructional strategies. At each point, we consider the short and long term progress of our science students.

Within the CSP, we work to meet the challenge of making standards-based instruction comprehensible to EL and to provide the opportunity for these students to develop the academic discourse to succeed in the science curriculum. As we consider individual standards, we may lose sight of larger goals for EL. Lesson Study asks us to consider how close we are working toward these larger goals for EL.

What do we mean by these larger goals? Specifically, for these second language learners, this means gradually developing English proficiency that approximates that of their English-speaking peers, that permits successful participation in the school's academic program and provides students with skills to meet most course needs. Students can then read, comprehend and write to meet most academic demands of the discipline at grade level. It means being reclassified as fluent English proficient using multiple criteria, and graduating from high school. In addition, we want these students to be scientifically literate and capable of building connections between science, technology and society.



For example, in working with EL at the intermediate level of proficiency on a unit on ecosystems, we expect students to explain how energy flows through the system. In order for students to explain in both oral and written form, a lesson must contain specific content and second language instructional characteristics. Thus, before we ask students to explain to classmates or answer essay questions about ecosystems, we need to review the nature of the instruction they are receiving. More specifically, we might ask the following questions:

1. Have students been able to make the connections between the concept of ecosystem with their own life experiences?
2. Have students been exposed to sufficient material to draw upon for their explanations?
3. Do students have the command of patterns of oral and written organization to be able to successfully share what they know?
4. Have the students had the opportunity to perform the role of teacher or guide to peers or adults?
5. Has corrective feedback been provided to the students before performance is formally evaluated and graded?
6. Have students begun to feel comfortable as explainers of scientific phenomena?
7. Through their classroom activities have students added the vocabulary specific to ecosystems such as food, energy, flow, and interdependence to their active personal vocabulary?

In summary, the Lesson Study process provides us with an opportunity to improve our instruction by purposefully examining along with our colleagues the long range goals for English Learners in science and seeing if our incremental, daily instructional steps will lead us to fluent English proficiency.

# THE OPPORTUNITY AND CHALLENGE OF LESSON STUDY

BY ARTHUR BEAUCHAMP AND  
KENDALL ZOLLER, SITE DIRECTORS  
OF THE SACRAMENTO AREA SCIENCE  
PROJECT

Two hurdles in the path of improving teaching and school improvement in California are: 1) structuring time for teachers to engage in the process of improving teaching; and 2) actually having a structure to engage in the process of improving. Lesson Study, provides a promising structure or methodology for improvement. When teachers engage in Lesson Study, both lessons and teaching are improved. The authors of *The Teaching Gap*, James Stigler and James Hiebert, point out that “the teacher” is not broken, but rather what we in education are missing are the tools and structures for improving the act of teaching.

The time conundrum is perhaps best solved at the site level. Schools have differing opportunities for allocating time and are best suited for finding or making available to teachers time for collaborative work. With the myriad of challenges and regulations facing schools today it will take a variety of creative ways of setting aside time to make Lesson Study (or any method of improvement) a systemic feature of a school or district. Schools might link Lesson Study to Program Quality Reviews, Western Association of Schools and Colleges, or School Improvement Plans and thereby



*Videography is increasingly used in all UCSF Science Project activities as an assessment tool to evaluate and improve professional development, as well as to give teachers insights into their own classrooms. (University of California, San Francisco, Science Project, SEP)*

encumber time for collegial discourse and lesson improvement. Lesson Study provides an incentive for aggressively pursuing the time issue as it has a definable product which teachers can use to change instruction – namely the lesson.

Lesson Study directly provides a setting and methodology for collegial discourse, teacher reflection, common

consideration of student work, design of lessons, and assessment of those lessons. Each cycle of Lesson Study by a group of teachers produces a highly scrutinized, tested, and refined lesson. The developed lessons have objectives, outcomes and measures of those outcomes. But more than that, each cycle also induces professional growth in all the participants in the process.

Lesson Study presents a great opportunity to affect teaching and school change. It has the potential to operate effectively within school cultures, and it has the signature of consistent change over time. Once established it can take place with minimal external management. Since observation and critique are explicitly invited and focused on with lesson analysis and lesson improvement, teachers generally do not feel as threatened as under some other forms of scrutiny or change.

In its current limited usage, Lesson Study is not perceived as highly prescriptive. Yet, it is rigorous. One of the challenges to spreading the acceptance of and participation in Lesson Study will be the conservation of this “non-mandated” and “non-punitive” climate. A climate that is respectful of all the participants and highly values learning, understanding, and growth.

## LESSON STUDY: CREATING BETTER LESSONS, CREATING BETTER TEACHERS

BY RICH HEDMAN, TEACHER, NATOMAS HIGH SCHOOL,  
SACRAMENTO

I became a convert to Lesson Study while reading James Stigler’s and James Hiebert’s *The Teaching Gap*, as part of a Sacramento Area Science Project (SASP) Summer Institute. With support from the SASP last year I gathered together a team of five interested science teachers to conduct Lesson Study at our site. We met for two hours approximately once every three weeks after school. Unlike most school-related meetings, each of us found ourselves actually looking forward to the Lesson Study meetings. As team member Erik Nemer wrote, “None of the [other] meetings were as productive for my professional growth, or as enjoyable, as Lesson Study meetings.” We enjoyed the meetings because we actually talked about something we love—something we, incredibly, never talk about at our other school-related meetings—teaching our students.

We began by defining a student learning goal, aligned with the California Science Content Standards, that addressed a challenge to student understanding. Independently, we each conducted research on the learning goal, searching for existing lessons on the topic, and enhancing our own understanding of the content in the process. Meeting as a team to review the research we had collected, we slowly began to map out a rough lesson on our student learning goal that suited the needs of our students, in our classrooms, at our school site. As the meetings continued, we began turning our rough stone of a lesson plan into a shining gem. When we thought we had developed “the perfect lesson,” we invited other science teachers and SASP leaders to critique it, and incorporated suggestions we felt would enhance the lesson. One team member taught the final lesson while the rest of us carefully observed certain things, such as specific lab groups, students with different skill levels, and timing. After the lesson was taught, we discussed our observations, noted what needed to be changed, and modified accordingly. At the conclusion of last year’s Lesson Study, each teacher wrote a short reflection on their experiences, all overwhelmingly positive. One of our team members, Cristina McFadden, wrote the following:

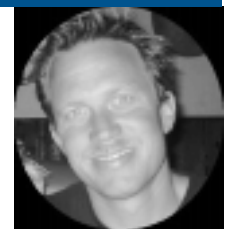
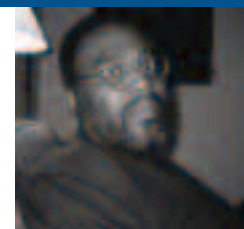
“For me Lesson Study was, in part, about working with other teachers to develop a lesson so that our students could be as successful as possible. It was also about bringing together teachers from different grade levels, subjects and backgrounds to talk about teaching. We were able to get into the nitty gritty of teaching, not just the surface. I have planned units with other teachers, but never in such detail or with such extreme collaboration. Our end product, a single lesson, was truly a showcase of every teacher in our group. Every voice was heard, every idea dissected for its viability within the lesson. And through it all I was left with the knowledge that not only was I improving one lesson (a lesson I would never teach in fact), but every lesson I will teach in the future.”

I was originally drawn to Lesson Study because it seemed a very logical and simple way to improve teaching, one lesson at a time. With my science background, I could envision the slow but steady improvement in lessons over time, the evolution of lessons better suited to the student environment through “teacher-selection.” However, later I began to realize that the process was much more important than the product; Lesson Study was the catalyst that forced us to engage in deep conversations about teaching. The process required us to reflect on our teaching practices and to construct our own meanings of teaching pedagogy. We were tricked into becoming better teachers through these insightful conversations. Lesson Study, if widely practiced by willing, reflective participants, will improve the quality of lessons, but more importantly, it will improve the quality of teachers. Lesson Study forces open the sealed doors of our private, isolated classrooms, and allows us to momentarily work in the light of true collaboration.

## USING TECHNOLOGY TO SUPPORT, ENHANCE AND EXTEND THE BASIC PRINCIPLES OF LESSON STUDY

BY LANE RANKIN, LECTURER, CALIFORNIA STATE UNIVERSITY, SAN  
BERNARDINO, AND GARY ODEN, CSP TECHNOLOGY SPECIALIST

Since the release of the Third International Mathematics and Science Study, considerable research has been conducted on the professional development of American and Japanese teachers. One of the key concepts identified is the effective-



ness of the Lesson Study process utilized by Japanese teachers. Since World War II, Japan has made a steady improvement in mathematics and science instruction. Researchers credit much of this to teacher-led Lesson Study. Even though the current research reveals the effectiveness of this model, there are several obstacles facing American teachers attempting to implement it in their classrooms. However, various forms of technology can assist teachers in enhancing and extending Lesson Study in their classrooms.

### HOW CAN TECHNOLOGY ASSIST IN OVERCOMING OBSTACLES AND ALLOWING TIME TO ENHANCE THE LESSON STUDY?

Experts and researchers of Lesson Study have posted articles and videos that support the implementation efforts of educators on the internet. Teachers interested in implementing Lesson Study will find outstanding resources to help them understand and actually guide them through the process in their own classrooms. Several online resources have been identified by the CSP and can be found at <http://csmc.ucop.edu/csp/resources/lessonstudy.html>. Utilizing a variety of technologies, such as internet resources, e-mail, video and other online communication tools, can assist teachers in the Lesson Study areas of planning, teaching, observing, and critiquing lessons.

In planning the lesson, teachers can use the internet to gather resources and enhance their content knowledge. Teachers can communicate and share their planning ideas via e-mail, discussion boards, or chat technology. Utilizing technology will allow teachers to plan lessons at times of their choice so they are not confined to working on their lesson during school time. Utilizing the internet will also allow teachers to access experts in the content area of the lesson. The technology opens the planning process to a much greater degree, effectively enhancing the Lesson Study process.

The most common method for teachers to observe a Lesson Study lesson is to be present in the classroom, however, the usual American time structure does

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# MAP OF CALIFORNIA SCIENCE PROJECT SITES



<http://csmp.ucop.edu/csp/>

1. Bay Area
2. BEST Institute
3. CSP at Irvine
4. Central Coast
5. Central Valley
6. Delta Sierra
7. Imperial Valley
8. Inland Area
9. Inland Northern
10. Monterey Bay
11. North Bay
12. Redwood
13. Sacramento Area
14. San Fernando Valley
15. San Gabriel Valley
16. South Coast
17. UCLA
18. UCSD
19. UCSF

Using Technology to Support, continued from page three

not allow for teachers to be out of their own classroom to watch a lesson in another classroom. The use of basic video technology can overcome this obstacle and may also enhance the Lesson Study process. James Stigler, professor of psychology at UCLA and founder of LessonLab, has been working with a team of researchers and software developers to create a basic guide to videotaping lessons in the classroom. This guide will give educators a simple method for taping their lessons and includes transcription of the lesson. It can be found at <http://csmp.ucop.edu/csmp/resources/video.html> or <http://www.lessonlab.com/>.

Once the lessons are videotaped, they can be posted on a website for viewing and critiquing by their collaborative team. After viewing the lesson, once or several times, the team can give feedback on the lesson content and structure via e-mail, discussion board postings, or live chat sessions. Utilizing this technology enables all feedback to be captured in writing and archived for future reflection and use, possibly providing a more accurate reflection of the content and structure of the lesson.

## THE FUTURE OF TECHNOLOGY AND LESSON STUDY...

In conclusion, as Lesson Study continues to gain popularity, new technology is developing to support its implementation in American classrooms. The use of Lesson Study as a professional development tool has proven to be very effective but potentially difficult to implement for American teachers. However, the effective use of technology tools has the potential to not only allow teachers to implement Lesson Study, but to grow and push beyond the boundaries by enhancing and extending the power of the collaborative effort.

What are the Essential Elements of Lesson Study, continued from front page

## 4. THINK DEEPLY ABOUT OUR LONG-TERM GOALS FOR STUDENTS

During Lesson Study, teachers consider the ideal qualities they hope students will have five or ten years in the future, their current qualities, and the gap between the two.<sup>6</sup> This long-term, whole-child focus is illustrated by Japanese Lesson Study goals, for example, to nurture students who “take pleasure in friendships and learning,” “hold their own viewpoints,” and “take initiative in learning.”

Since the importance of concrete and measurable outcomes is so often hammered into U.S. educators, the Japanese focus on broad and long-term goals (in addition to academic objectives) can be puzzling. But to many U.S. educators, the opportunity to consider long-term goals feels like the essential missing piece of instructional improvement. As one U.S. teacher commented:

“A lot of [American] schools develop mission statements, but we don’t do anything with them. The mission statements get put in a drawer and then teachers become cynical because the mission statements don’t go anywhere. Lesson Study gives guts to a mission statement, makes it real, and brings it to life.”<sup>7</sup>

## 5. COLLABORATIVELY PLAN LESSONS

While the average Japanese teacher sees about ten research lessons a year,<sup>8</sup> U.S. teachers have few opportunities to observe lessons taught by others.<sup>9</sup> Lesson Study builds a community of practice. As a Japanese teacher said after a research lesson:

“The research lesson is not over yet. It’s not a one-time lesson; rather, it gives me a chance to continue consulting with other teachers. For example, I may say to other teachers, ‘I want to ask you about my last lesson you saw. . .’ Then, the other teachers can provide me with concrete suggestions and advice because they have seen at least one lesson I conducted. We teachers can better connect with each other in this way.”

As another Japanese teacher said: “What’s a successful research lesson? It’s not so much what happens in the research lesson itself that makes it successful or unsuccessful. It is what you learned working with your colleagues on the way there.”

## 6. CAREFULLY STUDY STUDENT LEARNING AND BEHAVIOR

During research lessons, each Lesson Study team member has a data collection assignment – for example, to record changes in student thinking or methods used by students to solve problems. Data collected typically include evidence of learning, of interest or motivation, and of students’ treatment of one another – reflecting the belief that classroom climate and student motivation, as well as

academic knowledge, are important predictors of future learning.

In a perfectly controlled world, the “best practices” documented by research might be the same in every classroom. But in the real world, every class is different. Lesson Study assumes that teachers need to look for evidence of students’ learning, motivation, and development in their own setting. Lesson Study also provides a means for teachers to develop their evidence-gathering skills and ability to see a lesson from the student’s point of view. Developing “the eyes to see children” is, in the view of many Japanese educators, the most important goal of Lesson Study.

## 7. DEVELOP POWERFUL INSTRUCTIONAL KNOWLEDGE

Lesson Study also builds instructional knowledge that can be applied across diverse lessons. San Mateo- Foster City teachers list among their learnings from Lesson Study many instructional strategies applicable across lessons, for example: use of the blackboard to keep a continuous lesson record; the realization that minor variations in the problem posed and the manipulatives could “make or break” the lesson, and the importance of creating a hunger for mathematical terminology rather than just introducing it. The teachers of “Can You Lift 100 Kilograms?”<sup>10</sup> discovered that students gave very different responses when asked to look at an actual 220-pound sack than when given an illustration of the sack on a worksheet. Through Lesson Study, teachers develop and improve teaching strategies that can be applied throughout the curriculum, such as how to pose a good “*hatsumon*” (major question or problem) that will sustain students’ interest throughout the lesson and unit, how to use debates to maximize student participation in discussions, and how to foster student note-taking and reflection (ref).

## 8. SEE ONE’S OWN TEACHING THROUGH THE EYES OF COLLEAGUES AND STUDENTS

As they plan a lesson together, members of a Lesson Study group learn about their own assumptions about teaching, and how these may differ from those held by other teachers. Collection of data during research lessons reveals the lesson through student experiences. As a Japanese teacher eloquently notes, research lessons provide a mirror on one’s practice:

“A lesson is like a swiftly flowing river; when you’re teaching you must make judgments instantly. When you do a research lesson, your colleagues write down your words and the students’ words. Your real profile as a teacher is revealed to you for the first time.”<sup>11</sup>

Figure 1

Has Lesson Study enabled us to:

- Think carefully about the goals of a particular lesson, unit and subject area.
- Study and improve the best available lessons.
- Deepen our subject-matter knowledge.
- Think deeply about our long-term goals for students.
- Collaboratively plan lessons.
- Carefully study student learning and behavior.
- Develop powerful instructional knowledge.
- See one’s own teaching through the eyes of students and colleagues.

As U.S. teachers learn about Lesson Study, it may be tempting to think of it as a codified set of procedures for planning, conducting, analyzing, and revising a lesson. But the key to successful Lesson Study in the U.S. may be attention to the experiences in Figure 1.

1. Portions excerpted, with permission, from *Lesson Study: A Handbook of Teacher-led Instructional Change*, by Catherine C. Lewis. Philadelphia: Research for Better Schools, 2002.

2. Re-teaching the research lesson is optional, but highly recommended by Makoto Yoshida, a pioneer of lesson study in US schools (see Close-up 2, Chapter 5).

3. This material is based upon research supported by the National Science Foundation under grants REC 9814967 and RED-9355857. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author and do not necessarily reflect the views of the National Science Foundation.

4. Nick Timpono, teacher, Paterson Public School Number Two, Questionnaire Response, January, 2001.

5. Videotape viewable and available at [lessonresearch.net](http://lessonresearch.net)

6. Fernandez, Chokshi, S., Cannon, J., & Yoshida, M. (2001). Learning about lesson study in the United States. In E. Beauchamp (Ed.), *New and old voices on Japanese education*. Armonk, N.Y.: M.E.Sharpe, for a description of this process in a US school.

7. Class discussion comment by student teacher, Mills College class, Oakland CA, January 12, 2001.

8. Yoshida, M. (1999). *Lesson Study: A Case Study of a Japanese approach to Improving Instruction Through School-Based Teacher Development*. Doctoral dissertation, University of Chicago.

9. Yoshida, M. (1999). *Lesson Study: A Case Study of a Japanese approach to Improving Instruction Through School-Based Teacher Development*. Doctoral dissertation, University of Chicago; Darling-Hammond, L. & Ball, D.L. (1998). *Teaching for high standards: What policymakers need to know and be able to do*. New York: National Commission on Teaching and America’s Future and Consortium for Policy Research in Education; Darling-Hammond, L. (1997). *The right to learn: A blueprint for creating schools that work*. San Francisco, Jossey-Bass.

10. “Can You Lift 100 Kilograms?” is an 18-minute video of the lesson study cycle in a Japanese school, available from [lessonresearch.net](http://lessonresearch.net)

11. Kazuyoshi Morita, teacher at Tsukuba attached elementary school, interview on 7/3/96.